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(पहला पुनरीक्षण)

Indian Standard

ROAD VEHICLES — DRAWBAR COUPLINGS — INTERCHANGEABILITY

(First Revision)

ICS 43.040.70

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

November 2004

Price Group 5

Transport Tractors, Trailers and Industrial Trucks Sectional Committee, TED 22

NATIONAL FOREWORD

This Indian Standard (First Revision) which is identical with ISO 3584 : 2001 'Road vehicles — Drawbar couplings — Interchangeability' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendations of the Transport Tractors, Trailers and Industrial Trucks Sectional Committee had been approved by the Transport Engineering Division Council.

This standard was first published in 1989. In order to achieve harmony with the international practices, this revision has been undertaken to harmonized with ISO 3584 : 2001.

The text of ISO Standard has been approved for publication as an Indian Standard without deviations. Certain terminology and conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker, while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

CROSS REFERENCES

In this adopted standard, references appear to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their places are given below along with their degree of equivalence for the editions indicated. However, that International Standard cross referred in this adopted ISO Standard, which has subsequently been revised, position in respect of latest ISO Standard has been given:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 8718 : 2001 Commercial road vehicles — Drawbar couplings and eyes for hinged drawbars — Strength tests	IS 13284 : 1992 Automotive vehicles — Drawbar couplings and hinged drawbars — Method of test for strength	Equivalent
ISO 12357 : 1999 Commercial road vehicles — Drawbar couplings and eyes for rigid drawbars — Strength tests	IS 14880 : 2000 Trailers — Drawbar couplings and eyes for rigid drawbars — Method of strength tests	do

The Technical Committee responsible for the preparation of this standard will review the provisions of the ISO 1102 and ISO 8755 will decide whether they are acceptable for use in conjunction with this standard.

BIS CERTIFICATION MARKING

For BIS certification marking, details are available with the Bureau of Indian Standards.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

ROAD VEHICLES — DRAWBAR COUPLINGS — INTERCHANGEABILITY

(First Revision)

1 Scope

This International Standard specifies the characteristics necessary for the mounting and interchangeability of drawbar couplings on the frame (cross member, drawbeam or mounting bracket) of towing vehicles for trailers.

This International Standard is applicable to drawbar couplings intended for connection to trailers equipped with a drawbar eye on the drawbar of the trailer.

Characteristics not specified are left to the discretion of the component manufacturer.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 1102, *Commercial road vehicles — 50 mm drawbar eye — Interchangeability*

ISO 8718, *Commercial road vehicles — Drawbar couplings and eyes for hinged drawbars — Strength tests*

ISO 8755, *Commercial road vehicles — 40 mm drawbar eye — Interchangeability*

ISO 12357, *Commercial road vehicles — Drawbar couplings and eyes for rigid drawbars — Strength tests*

3 Designation

3.1 Reference may be made to this International Standard both for drawbar coupling mounting dimensions on the frame and for the separate drawbar coupling.

3.2 Frames in conformance with this International Standard shall be identified by the following information, in the order given:

a) reference to this International Standard;

b) number of category according to Table 1.

EXAMPLE Frames with mounting dimensions according to category 3:

Crossmember (or drawbeam or mounting bracket) ISO 3584 - Category 3

3.3 Drawbar couplings meeting the requirements of this International Standard shall be identified by the following information, in the order given:

a) reference to this International Standard;

b) code C 40 for 40 mm drawbar couplings and C 50 for 50 mm drawbar couplings, as applicable;

c) number of category according to Table 1 or number of class according to Table 4.

EXAMPLE 1 40 mm drawbar coupling according to category 3:

Drawbar coupling ISO 3584 C 40 - Category 3

EXAMPLE 2 50 mm drawbar coupling according to class 3:

Drawbar coupling ISO 3584 C 50 - Class 3

EXAMPLE 3 Drawbar coupling according to category 4:

Drawbar coupling ISO 3584 - Category 4

4 Mounting categories

4.1 Categories of drilling pattern

The dimensions for the categories of drilling pattern (see Figure 1) shall be as given in Table 1.

Table 1 — Categories of drilling pattern

Dimensions in millimetres

Dimension	**Category**				
	1	2	3	4	5 to 7
E_1	83	83	120	140	160
E_2	56	56	55	80	100
D_1	—	55	75	85	95
D_2	10,5	10,5	15	17	21

Dimensions in millimetres

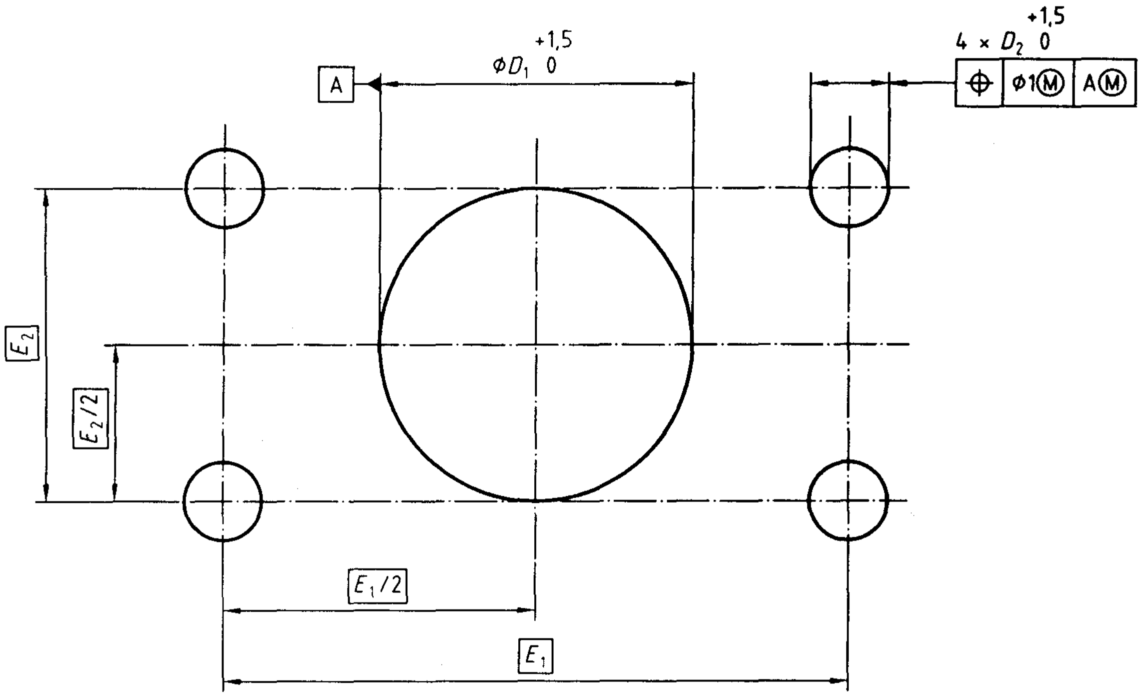


Figure 1 — Drilling pattern

4.2 Dimensional requirements on frame for mounting drawbar coupling

Dimensions on the frame required for mounting of the drawbar coupling (see Figure 2), such as the minimum flat surface defined by dimensions F and G, shall be as given in Table 2. Tolerances on drilling pattern dimensions shall be as shown in Figure 1.

Table 2 — Dimensional requirements for frames

Dimensions in millimetres

Dimension	Category				
	1	2	3	4	5 to 7
F max.	120	120	165	190	210
G min.	95	95	100	130	150
T max.	—	15	20	35	35
L_1 min.	—	200	300	400	400

Dimensions in millimetres

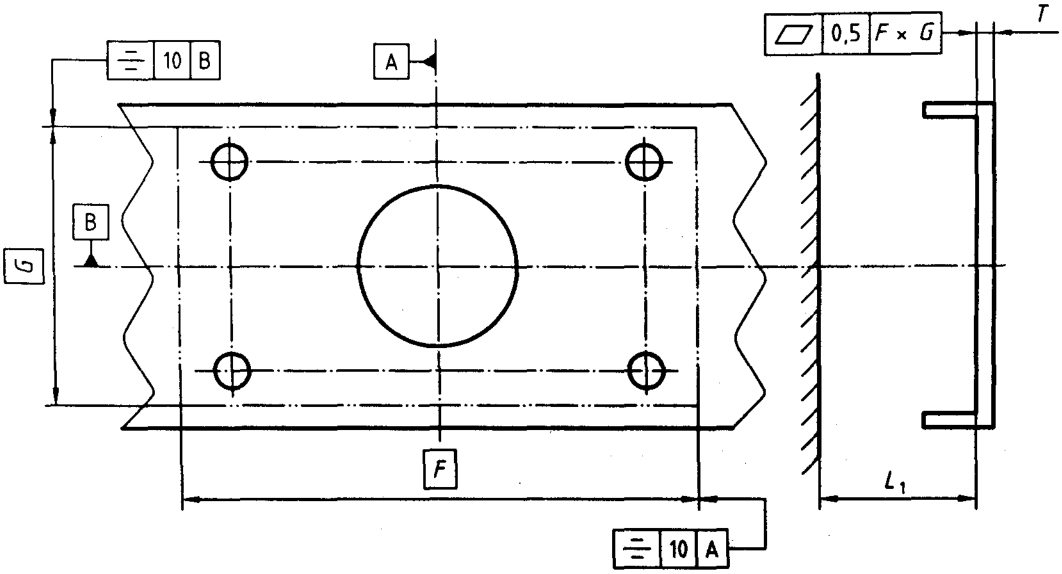


Figure 2 — Dimensional characteristics of frame

5 Drawbar Couplings

5.1 General

The requirements of 5.2 to 5.4 are applicable to all drawbar couplings. Additional requirements applicable to C 40, C 50 and classified drawbar couplings of both dimensions are given in 5.5.

5.2 Load requirements

The drawbar coupling shall satisfy the tests specified in ISO 8718 or ISO 12357 or both.

5.3 Dimensional requirements

The maximum outer dimensions of all components of the drawbar coupling shall be within the envelope box defined in Table 3 (see Figure 3).

In order to permit safer operation of the drawbar coupling, there shall be adequate free space around actuating devices. Dimensions needed to ensure operating clearance for actuating devices are also shown in Figure 3.

Table 3 — Dimensions of drawbar coupling envelope box

Dimensions in millimetres

Dimension	Category				
	1	2	3	4	5 to 7
M	95	95	100	130	150
N	120	120	165	190	210
P	—	180	280	330	330
Q	150	300	330	330	330
R	95	130	145	145	145
S	250	250	250	250	250
J	265	365	465	465	465
K_{-65}^{0}	165	215	265	265	265

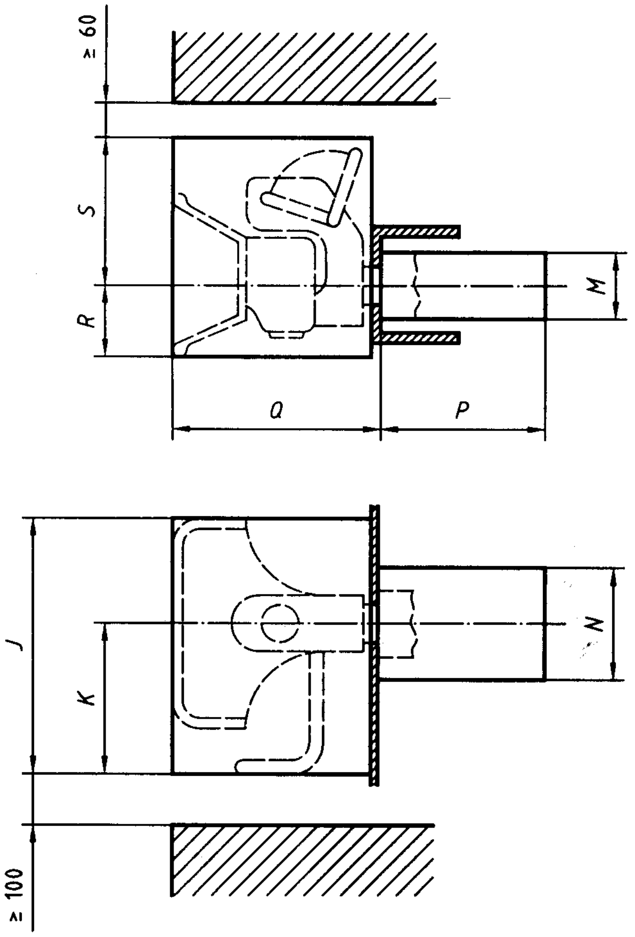


Figure 3 — Drawbar coupling envelope box and operating clearance for actuating devices

5.4 Articulation angles

The drawbar coupling shall be designed so as to permit the drawbar eye, when coupled but not fitted to a vehicle, to reach the following non-simultaneous degrees of articulation:

- ± 90° horizontally about the vertical axis from the longitudinal axis of the vehicle (see Figure 4);
- ± 20° vertically about the transverse axis from the horizontal plane of the vehicle (see Figure 5);
- ± 25° axial rotation about the longitudinal axis from the horizontal plane of the vehicle (see Figure 6).

NOTE Dimensions for ensuring operating clearance between towing vehicles and trailers are given in ISO 11406[1] and ISO 11407[2].

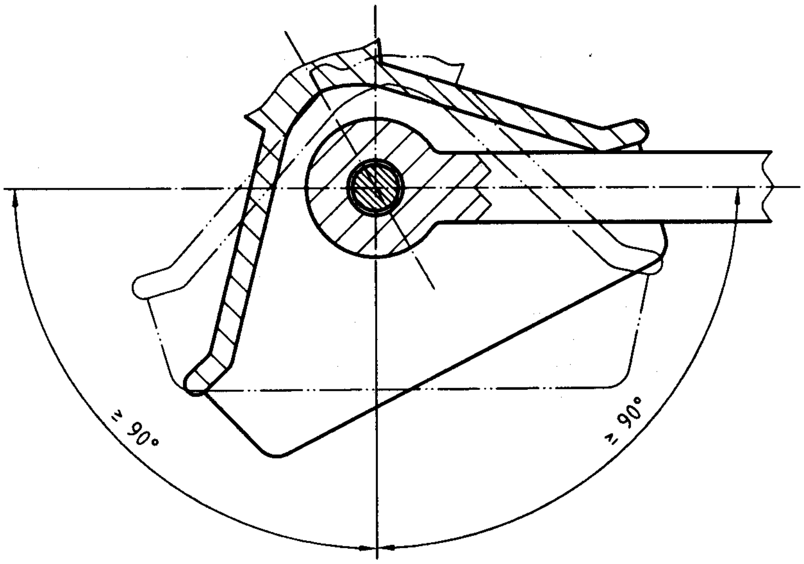


Figure 4 — Horizontal angle

5.5 Additional requirements

5.5.1 C 40 drawbar couplings

C 40 drawbar couplings shall be designed so as to permit the articulation angles described in 5.4 with drawbar eyes according to ISO 8755.

5.5.2 C 50 drawbar couplings

C 50 drawbar couplings shall be designed so as to permit the articulation angles described in 5.4 with drawbar eyes according to ISO 1102.

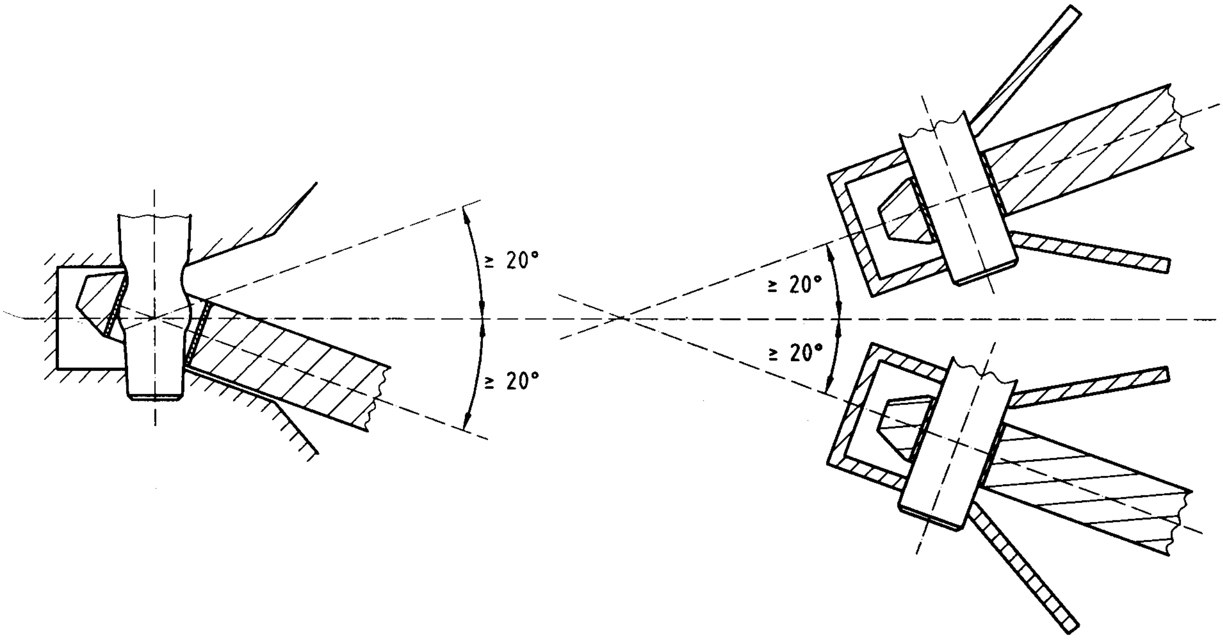


Figure 5 — Vertical angle

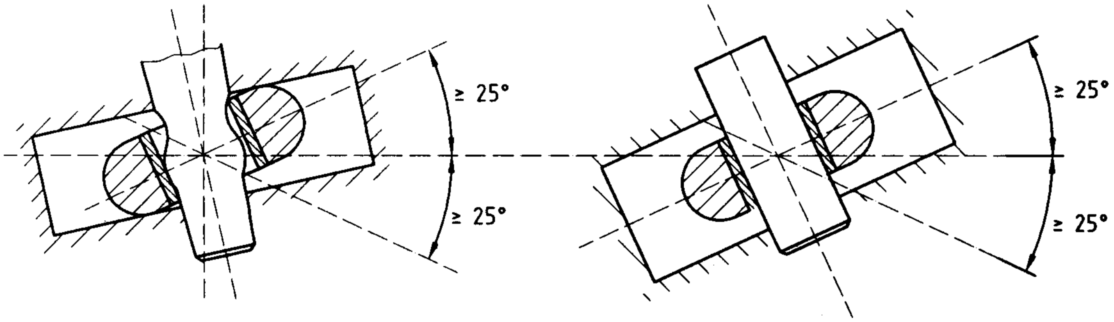


Figure 6 — Rotation angle

5.5.3 Classified C 40 and C 50 drawbar couplings

Dimensions of classified 40 mm and 50 mm drawbar couplings (see Figure 7) shall be as given in Table 4.

The couplings shall be suitable and tested for the minimum characteristic values given in Tables 5 and 6.

Table 4 — Dimensions of classified drawbar couplings

Dimensions in millimetres

Dimension		Class						
		C-1	C-2	C-3	C-4	C-5	C-6	C-7
e_1	± 0,5	83	83	120	140	160		
e_2	± 0,5	56	56	55	80	100		
d_1	max.	—	54	74	84	94		
d_2	H13	10,5	10,5	15	17	21		
f	$^{+6}_{0}$	110	110	155	180	200		
g	± 3	85	85	90	120	140		
a	$^{+20}_{0}$	100	170	200	200	200		
b	$^{+20}_{0}$	150	280	360	360	360		
c	max.	20	20	24	30	30		
h	max.	150	190	265	265	265		
l_1	max.	—	150	250	300	300		
l_2	max.	150	300	330	330	330		
l_3	± 20,0	100	160	180	180	180		
T	max.	—	15	20	35	35		

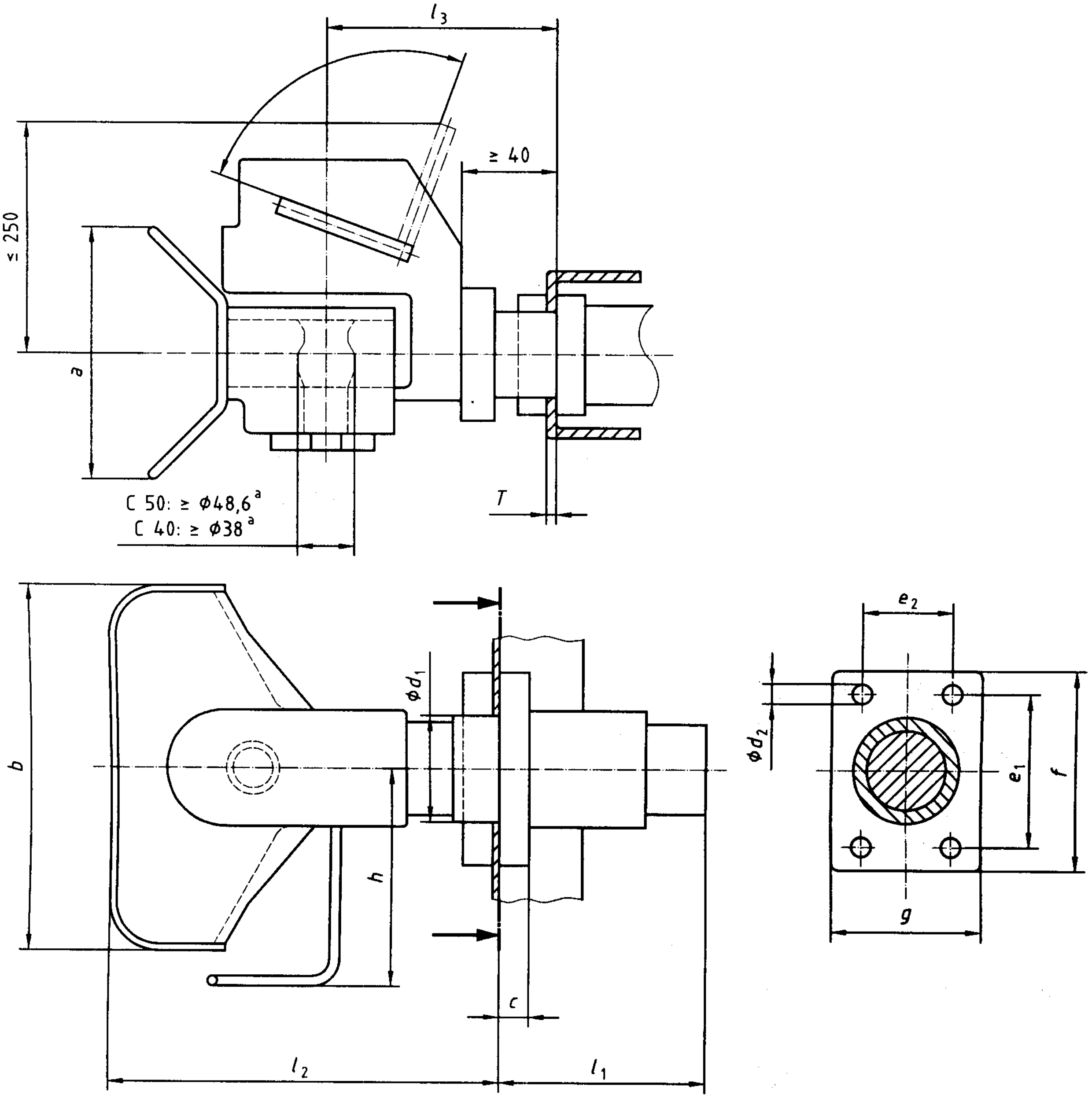
Table 5 — Characteristic values for classified C 40 drawbar couplings

Characteristic value		Class				
		C40-1	C40-2	C40-3	C40-4	C40-5
D value	kN	18	25	70	100	130
D_c value	kN	18	25	50	70	90
Static load S	kg	200	250	650	900	1 000
V value	kN	12	10	18	25	35

Table 6 — Characteristic values for classified C 50 drawbar couplings

Characteristic value		Class						
		C50-1	C50-2	C50-3	C50-4	C50-5	C50-6	C50-7
D value	kN	18	25	70	100	130	190	190
D_c value	kN	18	25	50	70	90	120	130
Static load S	kg	200	250	650	900	1 000	1 000	1 000
V value	kN	12	10	18	25	35	50	75

Dimensions in millimetres



[a] Maximum dimensions are limited by the provisions of 5.5.1 and 5.5.2 requiring the ability to couple drawbar eyes as specified in ISO 1102 for C 50 and ISO 8755 for C 40.

Figure 7 — Dimensions of classified drawbar couplings

Bibliography

[1] ISO 11406, *Commercial road vehicles — Mechanical coupling between towing vehicles with rear-mounted coupling and drawbar trailers — Interchangeability*

[2] ISO 11407, *Commercial road vehicles — Mechanical coupling between towing vehicles with coupling mounted forward and below, and centre-axle trailers — Interchangeability*

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